Gemini Microcomputers

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# GEMINI G513 CP/M 2.2 FOR NASCOM BASED SYSTEMS

This package consists of:

- 1 2708 EPROM (SIMON)
- 1 N2MDCPM PROM
- 1 Serialised CP/M 2.2 Master System Diskette
- 1 G513 System Modification Manual
- 1 G513 Software Manual
- 1 Digital Research Registration Form
- 1 Digital Research Software License Agreement
- 1 Set CP/M 2.2 Manuals:
  - Introduction to CP/M Features & Facilities
  - CP/M 2.2 User's Guide
  - CP/M Assembler (ASM) User's Guide
  - CP/M Dynamic Debugging Tool (DDT) User's Guide
  - ED Context Editor User's Manual
  - CP/M 2.2 Alteration Guide
  - CP/M Interface Guide
- 1 Gemini G513 Registration Form

Upon opening this package the Software License Agreement should be read carefully. If you do not agree to the terms contained then the complete G513 package should be returned to your distributor. If you do agree to the terms then the Digital Research and Gemini Registration Forms should be completed and returned to Gemini Microcomputers Ltd., who will forward the relevant information to Digital Research Inc.

Gemini Microcomputers will hold G513 User Details on file and will circulate information on software packages available from Gemini Distibutors and other sources from time to time.

Your CP/M master diskette has been verified by Gemini. This diskette should be copied by the user and then stored in a safe place. After copying it should not be used. If the master diskette becomes corrupted it should be returned to Gemini Microcomputers Ltd. for replacement. There will be a charge for this service.

# GEMINI G513 CP/M 2.2 FOR NASCOM BASED SYSTEMS

## INTRODUCTION

This package is designed to allow CP/M 2.2 to be implemented on a Nascom 2 based system fitted with the Gemini G809 Floppy Disk Controller Card (FDC) and Pertec FD250 disk drives. The package caters for either the normal Nascom 48x16 memory mapped screen or the 80x25 I/O mapped display if the system is fitted with the Gemini G812 Intelligent Video Controller Card (IVC).

Being a Z80 based system the Nascom lends itself to CP/M. CP/M is a de facto industrial and business system monitor. In some ways it is not as good as the Nascom monitors, but what it loses in its operational effectiveness is more than made up for by its disk management routines. Quantities of professional software are available to run under CP/M, and much `off the shelf' business software is also available.

The memory map of the Nascom is not suitable for CP/M as it stands, as CP/M 2.2 requires that locations 0000H to 7FFFH (minimum) be available as program space. The Nascom monitor, video and workspace currently occupy the bottom 4K of memory. This problem is easily overcome in a Nascom 2 by using a new `MD' PROM which is supplied. Using CP/M with Nascom 1 requires minor hardware modifications to be made (these can be incorporated on the butter board). In either case, after conversion it is a simple matter to switch the Nascom back to `normal'. The memory map chosen allows up to a 60K CP/M system to be implemented on the Nascom (or up to a 64K system when the Nascom is fitted with the Gemini G812 IVC card and further hardware modifications).

```
FFFF    Top of RAM
FC00    Workspace RAM (unused)
F800    Video RAM
F400    EPROM space for special user routines
F000    SImple MONitor (SIMON) and disk bootstrap EPROM
  :
  :     Transient RAM
  :
0000    Bottom of RAM
```

## Installation

A single 2708 EPROM is supplied (marked `SIMON'). This is fitted to the Nascom as detailed below. With CP/M, RAM must be located from 0000H upwards. A minimum of 32K is required. See the RAM board manual for details.

### Nascom 1

`SIMON' should be installed in position IC38. Position IC39 is free for a 2708 EPROM containing user routines (see Software Manual). The Nascom 1 must be arranged so that its 4K memory block is at F000H. This is done by setting the NASMEM/MEMEXT link on the RAM board to block `F' as opposed to block `0'. Additionally Reset must be arranged to F000H. This can be done on Gemini G806 `Supermum' as detailed in its manual, alternatively the Gemini G601 Reset Jump Kit may be added to the Nascom buffer board.

Nascom 2
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'SIMON' should be installed in position IC39 (B5). Position IC40 (B6) is free for a 2708 EPROM containing user routines (see Software Manual). The link blocks alongside these sockets (LKB5 & 6) should be wired to '2708'. EPROM positions IC41 & 42 may NOT be used.

The existing N2MD PROM (IC47) should be removed and replaced with the 'N2MDCPM' PROM supplied. This PROM provides the following decodes at LKS1.

| LKS1 Pin No. | Decode. | Purpose. |
|---|---|---|
| 16 | 0000 | (Existing Nas-Sys) |
| 15 | 0800 | (Existing Video/Workspace) |
| 14 | F000 | SIMON and User EPROMs |
| 13 | F800 | CP/M Video |
| 12 | E800 | (See Pin 9) |
| 11 | C000 | (Debug/Nas-Dis) |
| 10 | D000 | (ZEAP) |
| 9 | E000 | (Coupled withh E800, F000, F800 to restore Nascom 8K BASIC.) |

This layout was chosen as it allows the Nascom to be converted from CP/M back to its 'normal' form by simply substituting (or adding switches to) LKS1), without changing the new 'MD' PROM.

LKS1 should be linked as follows: 2-13, 3-6&14. This is CORRECT! The Nascom manual is not very clear in explaining LKS1 and appears to contradict this.

The 'Reset Jump' should be set to F000H, and the 8K/4K decode switches set to 4K. i.e. LSW1 switches 1,2,3,4,7 & 8 should be set to the 'DOWN' position.

GENERAL POINTS
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1) Read all documentation provided with the system before attempting to use the system.

2) Always 'Write Protect' the master system disk by placing a piece of adhesive tape over the write protect slot.

3) Always make a backup copy of the master system disk before any further use of the system is contemplated. Mistakes are easily made and it is easy to erase part or all of the master system disk.

4) It is good practise to make backup copies of all important files for the same reason as above.

5) It is best not to smoke in the vicinity of the disk system as cigarette ash is abrasive and could shorten the life of the drive heads and media.

6) Always ensure that the disk is inserted the right way up and the right way round. Severe damage to the drive unit can result if disks are inserted incorrectly.